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Application No. 09/589,299

Filed: June 7, 2000

Group Art Unit: 2675

1. A compact display device for transmitting an image to a user's eye, the display device comprising:

a head-mountable support fixture comprising an elongated member having a first end and a second end;

a projection system including a display operative to provide an image, the support fixture attached at the first end to the projection system; and

an eyepiece assembly attached to the second end of the support fixture, the eyepiece assembly comprising an axial optical system;

wherein the support fixture maintains the projection system and the eyepiece assembly in alignment along an optical path through free space between the projection system and the eyepiece assembly, with the projection system disposed to transmit the image on the optical path and the eyepiece assembly disposed to receive the image from the projection system and to direct the image to the user's eye.

10. The device of claim 1, wherein the projection system further comprises a lens oriented to direct light from the display onto the optical path.

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13. A compact display device for transmitting an image to a user's eye, the display device comprising:

a head-mountable support fixture comprising an elongated member having a first end and a second end;

a projection system including a display operative to provide an image, the support fixture attached at the first end to the projection system; and

a3 an eyepiece assembly attached to the second end of the support fixture, wherein the eyepiece assembly is disposed within a hollow, transparent, spherical housing;

wherein the support fixture maintains the projection system and the eyepiece assembly in alignment along an optical path through free space between the projection system and the eyepiece assembly, with the projection system disposed to transmit the image on the optical path and the eyepiece assembly disposed to receive the image from the projection system and to direct the image to the user's eye.

a4 16. The device of claim 13, wherein the eyepiece assembly further comprises a lens having an outer surface forming a part of the curved housing and an inner surface, the curvatures of the outer surface and the inner surface selected to provide a desired degree

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of magnification or aberration correction of light on the optical path.

21. A compact display device for transmitting an image to a user's eye, the display device comprising:

a head-mountable support fixture comprising an elongated member having a first end and a second end;

a projection system including a display operative to provide an image, the support fixture attached at the first end to the projection system; and

an eyepiece assembly attached to the second end of the support fixture;

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wherein the support fixture maintains the projection system and the eyepiece assembly in alignment along an optical path through free space between the projection system and the eyepiece assembly, with the projection system disposed to transmit the image on the optical path and the eyepiece assembly disposed to receive the image from the projection system and to direct the image to the user's eye; and

wherein the eyepiece assembly comprises a solid optical material having an external surface and an internal reflective surface, the material having an index of refraction selected so

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that light from the projection system incident on the external surface is refracted as the light propagates into the material and is reflected off the internal reflective surface.

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28. The device of claims 1, 13, or 21, further comprising a housing, the projection system disposed within the housing, circuits and wiring in electrical communication with the projection system disposed within the housing, and the support fixture attached to the housing.

Please add the following new claims 39-44:

39. A cellular telephone in communication with the display device of claim 13.

40. A computer in communication with the display device of claim 13.

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41. A personal digital assistant in communication with the display device of claim 13.

42. A cellular telephone in communication with the display device of claim 21.